DOCUMENT RESUME

ED 413 815 HE 030 718

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TITLE Observation of Instruction via Distance Learning: The Need for a New Evaluation Paradigm.

PUB DATE 1997-10-00

NOTE 18p.; Paper presented at the Annual Meeting of the Mid-Western Educational Research Association (Chicago, IL, October 15-18, 1997).

PUB TYPE Opinion Papers (120) -- Speeches/Meeting Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS *Distance Education; Educational Practices; Educational Technology; Educational Television; Evaluation Criteria; Evaluation Methods; *Faculty Evaluation; High Schools; Higher Education; *Instructional Effectiveness; *Interactive Television; Models; Teaching Methods; Telecommunications; Telecourses

ABSTRACT

The evaluation of instruction via distance learning at the high school and college level offers special challenges, particularly the evaluation of one-way video--two-way audio instructional programs. The role of the teacher is radically changed and teaching strategies and course design are particularly important in a distance leaning environment. Students must be prepared to assume more responsibility for their own learning since, usually, there is no opportunity for immediate clarification as in a normal classroom setting. The beginning of the class is particularly important in setting the stage for learning. Teachers also need to plan for as much student interaction as possible. Effective teaching includes intentional use of modeling behaviors and illustrations or demonstrations. Teachers must also make opportunities for checking student understanding at the most opportune time often accomplished via telephone or computer. In television instruction, the effective use of time must be evaluated differently, with more extended wait times when questioning distance students. Communication in a distance format minimizes the nonverbal component and raises the potential for erroneous interpretation. Independent practice to extend content is particularly important in the distance learning environment but is more difficult to incorporate into the lesson. Well-researched criteria are needed to evaluate the effectiveness of distance learning instruction. (Contains 38 references.) (DB)

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OBSERVATION OF INSTRUCTION VIA DISTANCE LEARNING: THE NEED FOR A NEW EVALUATION PARADIGM

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CHICAGO, ILLINOIS
OCTOBER 15-18, 1997

IR030718

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Observation of Instruction via Distance Learning: The Need for a New Evaluation Paradigm

Paradigms used in the observation and evaluation of regular classroom teaching may not be applicable when observing instruction via distance learning. The body of knowledge gleaned from the research on effective teaching when applied to teaching on television may simply not fit. At the very least, teacher behaviors tried and tested in a regular classroom will need modification if they are to be successful in distance learning. This is especially true when the teaching is to be performed in a *one-way video* mode. In this mode, the student must assume more of the responsibility for learning. Teaching on television is usually conducted in a one-way video--two-way audio, or two-way interactive video format. This article deals with the key issues that are essential to quality instruction via distance learning. As teaching and learning address the urgency of the technological explosion, compatible accommodations must be made for impending changes.

Instruction via distance learning needs close scrutiny and critical evaluation as it holds the potential to change teaching and learning. Although the costs may be prohibitive, the impact for teachers and learners is far too great to ignore. It is not a panacea; neither should it be dismissed with an attitude of "this too shall pass!"

Distance education is a distinguished system of education, distinguished from other educational forms by its separation in both time and place and by its teaching and learning acts (Rumble, 1989). The teacher is a very important element in the educational process, whether in a traditional classroom or in a distance education setting. One of the ways to determine the effectiveness of instruction conducted on a distance learning system might be to observe and document the characteristics and behaviors of distance learning instructors for comparison to the teaching behaviors found in the research on effective teaching. Specific teaching behaviors such

as providing effective praise (Brophy, 1981), use of advance organizers (Ausubel, 1960) or frequency of reviews (Cruickshank, 1986) might serve as starting places. Questions about effective teaching might include inquiry into interaction such as: 1) how often does the instructor initiate interaction with each student, 2) how often do the students initiate interaction with the instructor, 3) how much wait time does the instructor give a student responding to a question, 4) how often does the instructor use advance organizers, *or* 5) how much time does the instructor spend in reviewing previous lessons? Questions like these might be more useful in an observation instrument for teaching on television than an instrument normally used in a regular classroom. An analysis of the amount of teacher dialogue compared to the amount of student dialogue or a determination of how much of the interaction the teacher initiated and how much the students initiated might also prove beneficial (Barker, 1988).

Several studies assessing student attitudes toward media and technology in the distance learning environment have been conducted (Allen, 1995, Bangpibob, 1995, and Bozik, 1995). Adult attitudes toward instructional technologies are positive (Dillon, Haynes & Price, 1990); however, other studies indicate student attitudes are influenced by their familiarity with the technologies employed (Riddle, 1990, Smith & McNeils, 1993). Teachers and learners must realize computers are not inherently interactive. They provide an excellent environment for discussion, but they are only interactive if students participate responsively and regularly (Eastmond, 1995).

Kinzie, Delcourt and Powers (1994) found attitudes are important predictors of success and are critical areas for future examination. Distance learning students express a "need to know classmates" and a desire to "interact with someone else in class" (Egan & Sebastian, 1993). The

practice most often mentioned by students in a description of outstanding electronic teaching practices was the practice of providing for student-to-student and instructor-to-student interaction (Western Cooperative for Educational Telecommunication, 1995). Clearly, an examination of instructional effectiveness must consider an assessment of student attitudes toward the learning delivery system.

Teaching strategies and course design influence student attitudes in a distance learning environment. Students are positive toward interactive teaching methods (Burge, 1994); however, their attitudes toward the impact of technological difficulties are negative (Riddle, 1990). Saba and Shearer (1994) found students "felt connected and satisfied in a computer-facilitated interactive video classroom, yet felt isolated from the main class and saw themselves as passive observers in a video-only classroom." Keegan's comment might serve as a summation: "Interactive learning environments have proven difficult to design and deliver; however, current instructional emphases must consider new interactive technologies if "transactional distance" between learners and instructors is to be bridged " (Keegan, 1993).

The one-way video--two-way audio format necessitates conveying of information where the nonverbal dimension of teaching is missing for the most part (the student can see the teacher, but the teacher cannot see the student). The role of the teacher is radically altered. The teacher must make illustrations by describing or by creating verbal pictures for the students. Pinney's research (1969) found that without the opportunity to see the student, the teacher must prepare the students in such a way that they assume more responsibility for their own learning. Usually, there is no opportunity for immediate clarification as one would do in a normal classroom setting. This represents a major adjustment if the teacher uses a research based teaching approach.

Preparing the students to learn is an essential element in effective teaching. The beginning of the class is an important time. First impressions tend to have lasting effects, and teaching at the beginning of the period might be much more influential than the instruction taking place later. The beginning of class is one of the most critical "teachable moments." The teacher must take this into account and work diligently to get the students ready to learn (Hunter, 1982).

Whether one uses Hunter's "anticipatory set" or some other term, how the teacher addresses learning at the beginning of the class period is extremely important. Extend this thinking throughout the duration of a particular course and one would be well advised to model the appropriate behaviors early in the school year or semester. Opportunities to teach through modeling are greater at this time because rules and procedures are amenable to change (Doyle, 1986).

Setting the stage for learning when one is teaching on television becomes much more demanding of the teacher in terms of details that must be addressed. The flow of instruction must be planned in advance with materials and other strategies that do not require student interaction during the class period. The teacher must prepare visuals to illustrate processes that he/she might use to enhance learning. With the student role in learning largely dependent on the learner, the teacher will encounter difficult problems if the student has a motivation problem. This is true for any type of teaching situation, but teaching via distance learning formats tends to exaggerate the problem. Perhaps a more realistic approach for observing/planning and organization for instruction over a one-way video--two-way audio format would be to examine the materials themselves and try to determine the intent of the teacher. Observation could then discern if the teacher's intent were effectively reached. While preparation for teaching without anticipating

student interaction may be necessary, the teacher would be well advised to plan for student interaction as much as possible. This may necessitate class assignments where the students are required to interact with each other via computers, or telephone or with materials the teacher has provided. Either way, the preparation for such occurrences will greatly enhance the chances for them to actually materialize. In some distance learning situations, teachers use "chat rooms" or "newsgroups" where the students interact via the computer between the times classes meet. When students log on, their messages are recorded and the teacher is able to make some assessment as to how much interaction is actually occurring.

Effective teaching includes modeling on the part of the teacher. When one is observing instruction on television, an appropriate behavior might be to look for the teacher's illustrations or demonstrations, or modeling behaviors as they are displayed for the students who sit in the studio where the televised teaching takes place. Interviews with T. Wiedmer & J.C Thompson Jr., university teachers who have taught on television, verify that students have the advantage of the verbal and nonverbal dimensions of the teaching act and are able to discern and communicate more clearly than those at distance sites (Personal Communication, Spring, 1997). Thus a criterion for observing teaching on television might be to determine how well the teacher utilizes the students who are present at the programming site for demonstrating teaching points he/she wants to make. How does one observe for "overlapping" behaviors on the part of the teacher on television? One suggestion might be to look for the teacher at the beginning of the class to start a review session by directing a question to the entire class; take part of the roll or pass out papers (perhaps through a fax machine) while the students are thinking about the answer (wait time); then call on a student whom the teacher thinks will answer. By utilizing strategies like this, the

review and take care of "housekeeping" chores at the same time. The stage is set for the students to think about their answers and compare them to the one given by the student called upon. In this way, unvoiced misunderstandings or incorrect answers can be corrected without visibility or embarrassment. On television this teaching situation will need to be modified to utilize the students who are in the studio to model the behaviors sought by the teacher.

Modeling behaviors that teach desired outcomes might be observed as intentional or unintentional on the part of the teacher. How the teacher models respect for the students in the class sets the stage for how the students treat each other. In an attempt to explore the impact of invitational teaching practices on underachieving and apathetic teacher education students, Lange (1988) found a positive correlation between the invitational teaching techniques and increased positive experience for each student in the study. This study was an overt attempt to look at positive modeling behaviors and their impact on students who were disenchanted with their choice of a career. Students do not easily discern intentions unless the teacher exhibits overt behaviors. Overt teacher behaviors that are designed to enhance student motivation and attitude should be included in any evaluation paradigm of teaching on television.

A research based teaching model indicates the need to check for understanding. In the one-way video--two-way audio format, opportunity to check for understanding might not be as applicable at the moment the teacher needs it as it would be in the regular classroom. The teacher therefore must make opportunities for this crucial step in the teaching process. Student interaction in distance learning situations is often accomplished via telephone or computer via telephone lines. If the students are to utilize the telephone to interact from distant sites, elapsed time may be dependent upon the number of lines accessible to the students. Further, responsive

telephone calls by students may consume so much time that the question or comment becomes out of place in the sequence of interactive events. Without the opportunity to check for understanding at the most opportune time, the teacher may not be as aware of the student's comprehension of the content or processes being taught and may be unable to adjust the instruction for optimal learning.

Programs which permit only selected on-line classes to call in can hardly pretend to be interactive when a majority of their students are simply watching a one-way TV instructional program that does not allow them to call-in ask questions or make comments. Another factor is whether or not students at a receiving site would be able to be on-line with students at other receiving sites at the same time, thereby enabling not only teacher/student interaction but also student/student interaction (Barker, 1988).

Effective use of time is a variable necessary for successful teaching; however, when one observes teaching on television, there is the realization that the use of time must be evaluated differently. When the teacher asks a question, three to five seconds of wait time is well documented in the literature (Rowe, 1996), but this is not realistic in a distance learning classroom. An adjusted expectation might well be as long as ten seconds or an adjusted definition of wait time might be developed to include student/teacher interaction via telephone. The obvious question arises, however, that if wait time must be extended, how does a teacher cover the necessary learning material needed in the course? Or, if the teacher adjusts and makes decisions to concentrate on more essential elements of the content, who participates in the decision as to what is essential? These are typical of the decisions teachers have to make (Hunter, 1982).

Interviews with teachers who have taught on television indicate it is not possible to

process material initially, but teachers adjust over time and tend to acclimate to the demands of teaching on television. With practice and experience, improvement can take place. Strategies drawn from the research literature that might be applicable here include: 1) repeating content three or more times at *spaced intervals* results in content retention (Jersild, 1928), 2) *Proactive markers* such as "look at this," "watch me," or "now get this" increase retention also (Ehrensberger,1945), Petri (1963), and Maddox & Hoole, (1975).

Teaching in a distance learning format that is one-way video--two way audio presents a different situation from that of the "normal" classroom. A study of communication always includes a discussion of how much of a spoken message is received and decoded through the nonverbal gestures or nuances that accompany it. Estimates range as high as 93% of a spoken message is received nonverbally. Teaching on television in a passive one-way video system mandates that the teacher must convey information or processes in a medium that restricts the nonverbal dimension of the communication process. In observing teaching, it is common to view a series of communication exchanges that result in teacher and student behaviors that can be codified. The observation may be accurate only to the extent that the observer has the opportunity to summarize the complete exchange. In observing teaching in a distance learning format, the observer will not have access to complete verbal and nonverbal exchanges and may have to extrapolate or hypothesize occurred. This raises the potential for differential and/or erroneous interpretation.

The role of the student in distance learning is quite different from that of a live classroom. The student must cope with the technology to be able to participate in class assignments. Students must assume more responsibility for their own learning. Perhaps this is the greatest real

gain. Collaboration with the teacher to increase learning is essential in any learning situation. However, when the medium is a passive learning format like distance learning, more effort must be exerted by both the teacher and the learner. Precision of language used by the teacher when a concept is introduced and defined is important, but when examples and non-examples are given, it becomes critical. It should be noted that concepts are attained more completely when both examples and non-examples are provided (Tennyson, Woodley, and Merrill,1972).

Learning is enhanced when the teacher states each concept, law, or rule clearly. This might be accomplished by defining or stating the components, explaining in a language from which the students can profit or in such a way as to allow the students to demonstrate either by example or analogy. When students have opportunities for guided and independent practice, achievement is enhanced (Klausmeier, 1976). In 1979 Anderson, Evertson, and Brophy found a strong correlation between the number of minutes spent in guided practice (where a large number of questions were asked) and achievement. They also found a positive correlation between student achievement and the number of responses, suggesting interactive student practice at a brisk pace. Rosenshine and Stevens (1986) found that correctives and a high percentage of correct responses provided during guided practice are essential. The question then becomes: "How does the teacher give guided practice in a distance teaching/learning format?"

Independent practice used to extend content that has already been taught is a sound research based teaching practice. It usually involves two stages: 1) working on the first few examples or questions, and 2) when students have mastered the material and are working on reinforcement (Samuels, 1981). In the first stage, instruction is focused on the teacher's behavior and is usually a direct instructional situation. An ineffective teaching behavior that is often

observed when students ask questions about material that has just been presented is that the teacher often repeats the first example that was used to explain the concept. Not only is the example repeated, it is often repeated more slowly, loudly or precisely. This practice is ineffective because the teacher is emphasizing an example that the student did not understand the first time it was presented. It is exacerbated by the fact that the teacher repeats it slowly and often more loudly as if to emphasize that the fault lies with the student and not the example. It is the wise and skilled teacher who recognizes this situation and shifts to another example while assuming the responsibility for the student not understanding. Frayer (1970) found that a few well-chosen examples were better than numerous examples and the number of examples that a teacher uses may not be as significant as the quality of examples given.

In a distance learning format, the teacher will be hard pressed to incorporate independent practice while the lesson is being taught. Learning then entails work or practice beyond the classroom. Teaching on television can be greatly enhanced by use of computer-assisted interaction. Riel (1993) found computer-mediated communication raised cross-cultural awareness. Social interaction is increased (Johnson-Lenz & Johnson-Lenz, 1993), writing skills are enhanced (Paulsen, 1992), knowledge construction and thinking are facilitated, and independent learning strategies are developed (Mason & Kaye, 1989). However, lack of visual cues can also inhibit depth of communication (Selfe & Meyer, 1991). From these studies an evaluation of teaching on television, especially when the evaluator is trying to assess independent practice, clearly must attempt to assess activities that occur beyond the classroom and between times when the class meets. Interaction between students outside the classroom may be a direct reflection of the teacher's action during classtime.

SUMMARY

Instruction via distance learning is a widespread practice among educational institutions. It is utilized for upper level classes at the high school level to provide opportunities for students who plan to pursue higher levels of study. Colleges and universities use distance learning for a variety of instructional purposes from delivering classes within state borders and between states nationwide to video conferencing that might have international hookups. The explosion of technology has served to remove the barrier of distance for access to learning. The speed with which electronic signals can transmit information has permeated nearly all areas of society; education is no exception. Technology is here to stay and its implications for instruction stagger the imagination.

An issue of distance learning that must be considered is the quality of the instruction and learning that takes place. The research on evaluating instruction via distance learning formats has been largely confined to analyses of self reported data from participants. Careful observation with well researched criteria are needed to evaluate the effectiveness of distance learning instruction. The research on effective teaching is a body of knowledge that has been accumulated largely in traditional classrooms. The distance learning site is not a traditional classroom as far as teaching and learning are concerned, and the traditional criteria utilized for observing and evaluating teaching are not appropriate for observing and evaluating instruction via distance learning. As evaluators use the results of research on effective teaching and apply them to distance learning instruction, modifications of existing criteria need to be made. There is also a need for new criteria that are more compatible with distance learning environments.

Student attitudes toward learning are especially important for success in a distance

learning situation. The teacher and learner must possess a degree of confidence and comfort with the technology. When the nonverbal dimension of teaching is missing, the preparation for instruction is different and must focus more on created visual images rather than direct observation.

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